

AVIATION WEEK

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50 CENTS



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Triple "Rota-Roll"

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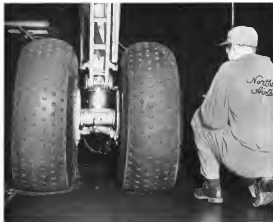


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THE NEW B. F. GOODRICH airplane tire has a stronger cord body and new reinforcing steel web designed to increase its life. These dimples provide better distribution of the tire load and reduce exposure to oval cutting. The steel design is a complete departure from conventional solid wheels.

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WHO'S WHERE

In the Front Office

M. (Skip) Tittle has been elected a new president of Republic Co., maker of target drive aircraft. Van Nieu, Calif. Tittle, for the past year the company's director of sales and relations, will continue his corporate duty in his new post.

C. T. Everett has been elected and general manager of Republic Helicopter Corp.'s New York division. He has assumed assistant general manager of the firm's Phoenix, Ariz. operations, which include the Helicopter Flying division and Aviation division. The latter makes jet engine turbines and blades.

Arnold Rosenberg has joined Republic Co. Inc., Little Falls, N. J., as assistant vice president. The firm makes aviation instruments and navigation devices. He formerly was general sales manager for Bendix Radio Communications division of Bendix Aviation Corp.

Robert A. Elbert has been named sales manager in charge of the sales division of Northrup Aircraft and assistant to the division president. He joined NAA in 1945.

Changes

Charles A. Roper has joined California Control Systems in the new position of an executive, assistant management dealing with legal matters.

Ralph L. Kewenow has been placed in charge of administrative personnel services and liaison and development control functions for General Aircraft Corp.'s Production Engineering Department, Alhambra, Calif.

Roger Schenck has been named chief engineering for North American Aviation Inc. and now vice president responsible for the North American Co. has been appointed technical assistant to the president of Northrup Aircraft Inc., Hawthorne, Calif.

F. Clark Cahill has been designated chief engineer of the engineering and production division of Aeroquip Instruments Inc., Menlo Park, N. Y.

Clifford W. Newman has been named assistant manager, manufacturing division, Atlas Aircraft Co., San Diego, Calif. W. Robert Brown has been designated manager of production control.

Kenneth R. Johnson has been named head of the electro-mechanical development laboratory of E. Roy Co. Inc., Los Angeles and John C. Smith has been appointed assistant business manager.

Group Capt. Claudius Glendon has been appointed technical consultant to the North American unit for British Commonwealth Forces, Western Hemisphere Ltd., Donair, Vancouver, B. C. and (Holland) Ltd., Canada will have offices at 477 Fifth Ave., N. Y. C.

Robert S. Scott has joined Aeroquip Corp.'s Service Department, Millville, N. J., as a field representative.

G. Knott has been named chief designer of Ferry Construction Co., N. Y. Ferry, Inc., subsidiary in a change of the USAF ferry program.

INDUSTRY OBSERVER

✦ Aircraft industry is expected to hit a post-Korean production peak in December, declining slightly since then 1,000 aircraft in the military sector. This compares with a production rate of about 280 aircraft a month when the Korean war began.

✦ Senior pilots recently returned from Korean combat against the Russians are being charged more with Pentagon loss on return missions, completely begins to expose performance of combat efforts. The NAC, however, can the following requirements: (a) a number of what could be eliminated from aircraft F-86 models to improve combat performance; armor plate in front of the pilot (FV) the armor protecting the pilot's back that usually is jet combat; personnel gas chargers (A) gasolene safety device not worth the added weight and complexity over a manual charging system; all moving gas tanks (MG) certain shells four barrels too long for loading in close and one of the three barrel gas actuating system (Pilot) fuel two a stream gas than all the safety, too—the third is excess baggage.

✦ CAA Administrator Charles Howe reports personal flying has sunk to its lowest level in many years. Applications for student pilot licenses dropped by 15,000 during the last eight months of 1952 compared with last year. Only 10,217 private licenses have been issued this year compared with 17,402 for the same period of 1951.

✦ Recent General Electric jet-engine conference (Aviation Week, Nov. 2, p. 11) gave the engine designers their "best significant data on jet engine service life and engine problems," according to one source, officials who attended. GE presented data obtained from its USAF sponsored J47 jet engine tests conducted in a B-45.

✦ Trend toward delta wing designs for the next generation of really high-speed fighters capable of operations at Mach 2 is increasing among U. S. aircraft firms. Lockheed, North American and Republic are the latest to be working on this type of design that was pioneered in Germany and first fully developed by Convair. U. S. delta philosophy aims at a thin wing for speeds of Mach 2 while British designs are exploiting the advantages of a much thicker delta with speed benefits having performance much over Mach 1.

✦ UATL, French considerable engine has been its strengthened rival, Air France, on the de Havilland Comet 3 production line. UATL aircraft scheduled to enter into a line of series 3 Comets carrying a pilot on the order job sent behind Pan American and BOAC. UATL also ordered earlier model Comets before Air France which has not yet entered an option to build for purchase of six Series 3 Comets.

✦ Air Force Secretary Feltner reports USAF awarded the number of planes assigned to its operational units (Airfield, Strategic, Air Defense, Troop Carrier and MATS) by 57% in the 21 months after the outbreak of the Korean war. Increase of planes in storage (World War II type) decreased by 40% during the same period mainly due to transfer to NATO countries, Korean combat and storage.

✦ CAA is reaching its first formal test on one-directional stress (TVGR) for prime test primary unit at Glendale, Calif. and Tokyo. Data on TVGR are still to be published by CAA, indicating it was first indicator of operational procedure. Test mode TVGR, which is scheduled for installation including one at Washington National Airport. CAA estimates total cost of TVGR installation at about \$15,000 compared with \$50,000 for a standard one-directional stress (VGR).

✦ Jet transports won't be able to avoid troublesome weather in a coming at 40,000 feet. American Airlines' Capt. Gene Weather is reported to have encountered a frost at 47,000 ft. while flying the B-47 used by General Electric to fight jet test jet engines.

Washington Roundup

New Secretary of Defense

Here are some brief elements of General Motors Corp. President Charles E. Wilson, indicating the kind of the substitution program when he takes over as Secretary of Defense:

► **Minimum Stockpiling**—Wilson isn't likely to go along with an air power program to match Russia plane for plane or tank for tank. He takes issue with such defense jobholders as older statesmen Bernard Baruch and Ben Lockwood Johnson who put great importance on "insurance" of planes and other weapons subjecting risk to the action Wilson's element. Stockpiling of equipment



Charles E. Wilson

and even in a doubtful defense measure because of the wear—creating technical development of military equipment.

► **Wits — Piece Plans** — The U.S. must maintain a good record in production capacity, which could still result in being out of the front of the battle in being in the direct of our hands, Wilson believes. The way to strengthen this, he proposes, is with "multi-purpose" plants. Two examples, he suggests, are a plant able to produce jet engines and automobile body stampings, or a plant for assembly of aircraft and automobiles. The plants would have facilities common to both types of production and facilities special for each type of production. Workers could be promptly switched from one type of output to the other.

Wilson observes: "Under the dual-purpose plan, there would be no plant standing idle without competent attendant at times when duty were not being used for war production. The ability to convert quickly to war production would be preserved. Of great importance, then, the properties could be quickly and flexibly converted back and forth from war purpose to the other without great expense."

He wants legislation authorizing long-term contracts to civilian producers for maintaining special war production facilities in their plants, and keeping them up to date.

► **Technological Program**—Wilson views technological advance as the key to an efficient military machine. Strong emphasis on research and development for improved manufacturing techniques, as well as improved planes and other weapons, is expected in his regime.

► **Discouraging Openness**—The current trend toward "openness" of the military secret and increased security and responsibility for the top-level officials of

Secretary of Defense must counter to Wilson's concept of civilian cooperation. He might bring pressure to bear on it.

Under his proposals, the top-level management at GM has oriented itself to making overall policy and seeing to "coordinators." The corporation's 40-year divisions have been left pretty much on their own. Each division designs, develops, manufactures, assembles and advertises its own product. Each makes its own production-line order decisions or outside contracts as it chooses. Each hires and trains its own employees and maintains its own staff and operating organization.

Review of Defense: By Congress?

As House and Navy both want Congress—instead of a commission appointed by the President—to undertake a review of the whole defense program.

This probably would take time.

► **Key major changes in the defense program** recommended by a presidential commission, such as reorganization of the department or streamlining of roles and functions of the services, will have to be passed on by Congress and translated into law before they can become effective.

► **The outcome of any other proposals**—for example, more or less emphasis on carrier or land-based aviation—will also depend on Congress. It would be up to Congress whether to implement them with funds as now they are refusing to allow funds.

It is so, but Congress will set up a joint defense review committee at its own, even if the new President appoints a commission. This is what developed in the review of the war power program in 1947. Despite the appointment of an Air Policy Commission by President Truman, Congress organized a joint Congressional Aviation Policy Board to cover the same ground.

Another Stretchout?

Another stretchout of the aircraft production program as a few months more seems likely.

Under present schedules, spending for aircraft and related procurement—started two years ago—will result to around \$12 billion for the 1953 fiscal year (which starts July 1) and total defense spending for the year to over \$50 billion. For the current 1953 fiscal year, spending for aircraft procurement is estimated at \$9.1 billion and total defense spending at \$40 billion.

The Truman Administration, it is understood, wants to keep military expenditures for the coming year to about the 1952 level. The new Administration and Republican Congress may even want on a lower level.

The only way to hold down expenditures is to slow down delivery rates and stretch out the armament program.

Navy: A Political Advantage?

Seaplanes, able to deliver atomic attack and land anywhere on the world's protected waters, will probably be so soon to sail to Congress as the B-36 reconnaissance bomber was a few years back.

They have the same points of political appeal.

► **Both hold both the possibility of carrying a war to the enemy, delivering blows that would constitute daylight ground fighting.**

► **Neither requires large bases involving entanglements and the prospect of enemy capture—Katharine Johnson**

AVIATION WEEK

Supersonic Plane to Use Hydro-Ski Gear

- Convair XF2Y-1 slated for new landing device.
- Two versions of system have been developed.

A revolutionary new landing gear that will enable high-speed fighters to operate from water, grass, wet and snow has been developed as a result of a joint military-civil research program.

The new type gear is known as a hydro-ski. It is a development of the common water-ski with a bottom planing surface and a rounded upper surface to provide underwater lift.

First test of the hydro ski will be made soon in San Diego Bay with the flight of the radical Convair XF2Y-1, a delta-wing supersonic water-based fighter.

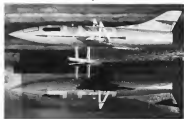
The XF2Y-1 is the first combat-type aircraft to be fitted with hydro-ski. It will operate with a pair of retractable aluminum hydro-skis that will enable it to take off and land on extremely rough water without a splash or hull.

The XF2Y-1 will be powered initially with a pair of Westinghouse J48 turbojets, but production version may be scheduled to take more powerful Westinghouse J40 jets. Indication of Navy's interest in this program was the notification during fiscal 1953 budget hearings that it planned to invest nearly \$6 million aimed for a service test quantity of the Convair water-based fighter.

► **Passion in Arctic**—The Convair XF2Y-1 is expected to pioneer a new field in water lighter development, particularly for the Arctic area where development of long, solid runways for jet operations is extremely difficult. The Convair fighter could operate from protected waters, in the ice and off ice and levelled snow strips during the winter.

Sea war development by the NACA, Navy, Air Force, and Bureau of Naval Aeronautics and the Edo Corp. has behind the current applications of the hydro-ski. Recently, the idea was used in the early thirties by Canadian biplane pilots who used their water ski landing gear on water during the transition periods when sea was not sailing.

In 1946 NACA initiated investigations into the possibilities of developing hydro-ski design applicable to high



DOUGLAS SKYROCKET water-based hydro-ski device in Navy tank



GRUMMAN F7F-1 used by Edo Corp. for "test" trials on new gear

speed landings of the future. Early NACA experiments were centered around model testing of the Douglas Skyrocket (D-555-1). A year later the Air Force initiated a research program with the Edo Corp. to develop a ski gear capable of operation on snow or water for its service planes and in 1945 Air Force Air Corps told the Navy on the idea of experimenting with water ski for landings.

► **Two Development Lines**—Development has proceeded along two basic lines.

► **The application of hydro-ski to aircraft that is relatively basic.**

► **To avoid that have no inherent feasibility.**

The first type is represented by the Edo institution on the Grumman

[RF. The plane has a normal airplane hull and uses the planing characteristics of the hydro-ski for landing and take-off at relatively high speeds. As the aircraft slows down it sinks to rest on its hull. As it speeds up, the takeoff hydro-ski lifts the hull out of the water and the full island unit is made entirely on the hydro-ski.

The Convair XF2Y-1 is a variant of this theory. It has a lightweight fuselage and can float on the water. But the hydro-ski takes all the shock of the water impact on both landing and take-off. Therefore the XF2Y-1 could be designed solely as a high-speed fighter without any sacrifice in performance required by a high-strength airplane hull.

► **Get Water Lift-On**—Instead of the

AF Plans \$15-Million F-89 Fix

Heavier wing-attach fittings are ordered to combat "aeroelastic problem"; Gilpatrick issues statement.

A \$15-million modification program will be required to eliminate the cause of recent wing failures in the Northrop Scorpion (F-89) night fighter, according to the Air Force.

The modification program will require all Scorpions now in USAF service to be sent back to the Northrop plant at Hawthorne, Calif., for repairs in addition to correcting Scorpion nose-on-the-production line.

Change involved—Principal item in the modification program is the substitution of a heavier machined fitting for attachment of the wing to the fuselage (for the modified fittings see inset).

It was fatigue failure of these extended fittings that a new cracked wing during the tests of Scorpion number 52, which resulted in USAF grounding of all F-89s last September.

Meanwhile, John K. Northrop, president of Northrop Aircraft, Inc., an unrelated but interested firm in the system industry at the company's annual meeting last week in Los Angeles. Oliver P. Bolsh, board chairman, was elected to fill the additional spot of president. There was no indication that Northrop's retirement had any connection with the F-89 problem. Northrop cited ill health in his memoir.

Added Details—In addition to the \$15-million modification, there possibly extended last week as USAF sought to clarify its position on the Scorpion program.

The production program for the F-89 series has been definitely cut back. Original F-89 production program re-

sulted the end of 1955. USAF now the program will now terminate in 1955.

A cutoff has been made in current production of the F-89D and a shift will be made soon to the F-89C. In addition to the structural modification, the F-89C will have a new (smaller) number instead of the extra nose mounted on winging pods.

All Scorpions delivered to USAF are still grounded although USAF Undersecretary Kenneth Gilpatrick said this would be "soon an emergency."

There has been a lot of busy debate in top USAF circles during the past few weeks over whether the Scorpion program should be completely eliminated. A meeting of the Air Control only in November, attended by Maj. Gen. William D. Riley, Assistant Deputy Chief of Staff for Material and Clarence "Bill" Irvine, Deputy Commander the Production of Air Materiel Command, ended cancellation of the program. Maj. Gen. Mark Budzik, Director of Procurement and Production at AMC and Brig. Gen. Al Boyd, Commander of Wright Air Development Center, made an important report of the situation at Northrop and appeared before a later Air Control meeting. Commanders decided to spend the \$15 million for F-89 modifications and continue the program until 1955.

Industry observers are delighted of Gilpatrick's statement regarding the Scorpion's all-inclusive speed—generally interpreted to mean between Mach 2 and 3.2 and claiming that aerodynamic effects of transient speeds were inside

engineering experience at the time of the Scorpion's design.

Following is the text of Gilpatrick's statement on the F-89 situation made at Northrop's plant Nov. 29.

"A published report in an aviation trade paper [American Aviation Daily] that the Air Force has decided to cancel its F-89 contracts with Northrop Aircraft, Inc., of Los Angeles is untrue. Several wing failures of the F-89 have occurred recently, although the aircraft has been in use two years.

"Critical investigations by Northrop and the Air Force have determined the cause of the failures and specific modifications have been agreed upon and are being incorporated in the Northrop production line.

"The modification of aircraft now in service will be done by Northrop at its Ontario and Hawthorne, California, facilities. To the extent necessary for the acquisition of new material and fabrication of new parts, the change will entail a temporary slowdown in production of new aircraft. The modification program will be completed in less than a year. Meanwhile production will be stepped up to bring the entire F-89 program back to schedule at a somewhat later date."

Total Unchanged—"The total number of F-89s to be built by Northrop is not being changed," [Ed. Note—This appeared in the November 29 issue of AVIATION WEEK & SPACE up to 1955]. Meanwhile F-89s in the Air Force tactical units, although temporarily grounded, remain in a state of combat readiness and in event of an emergency could be flown.

The F-89 Scorpion, a two-seat, two-engine all-weather interceptor, operates at the transient speed range. At the high speeds at which it flies—speeds outside engineering experience at the time the aircraft was designed—unusually effects are now found to have appeared on the aircraft structure and particularly the fittings attaching the wings to the fuselage, greater loads than anticipated. These greater loads combined to produce a wing and fuselage fatigue of the attach fittings although the aircraft in earlier tests and structural tests under Air Force conditions had demonstrated a structural margin in excess of requirements."

Change Wing Fittings—Essentially, changes now under way consist of replacing the corroded wing attach fittings with heavier machined fittings, and of installing laminated fins to the winging pods. The addition of these fins has been found to provide a reliable solution to this particular aerodynamic problem at high speeds.

"Critical difficulties of the order at the present state of the aeronautical art are to be expected as the pace of progress at the world race for more effective combat aircraft."

Speed Record

- F-86D tops 700 mph. twice in four test runs.
- New U.S. record to be certified to FAI.

A U.S. jet fighter officially has flown faster than 700 mph. For the first time in two sustained speed trials which are expected to be confirmed as an international record.

The record, made Nov. 16, will be certified to the Fédération Aéronautique Internationale as 699.9 mph—the average of four high-level runs over a measured 1/4 mile course. The flights were made by a North American F-86D. Sears mid-mission interception, piloted by Capt. J. Wade Nash of Edwards AFB.

Checkings—Height of the dives was checked at 702,851 mph, the second highest at 700.49, the third at 698.45, and the lowest at 694.05.

Charles Lockhart, National Aeronautics and FAI official, noted, and that in some small variations in altitude between the highest and lowest speed runs due partly to the lack of wind over the course, at Silver Sea, Calif., and partly to the precise flying of Captain Nash.

The airplane was actually flown "over degraded" race tracks, pointed at due to the surface of the dry lake, which has an altitude of 240 ft. below sea level. Lockhart estimated the intercepter's average height was about 125 ft. although it was allowed to operate up to its altitude 100 mph above the ground.

The airplane is powered by a General Electric J47 engine, rated at approximately 5,000 lb. thrust, but fitted with an afterburner. It was reportedly boosted the thrust to approximately 5,000 lb. for the trials.

Temperature—Flights were made at a temperature of 70 deg. F., a relatively cool day for the Silver Sea area, and it is believed the record would have been considerably higher had it been a warmer day.

How long the new record will be allowed to stand without challenge was not known. New distribution of the question, giving second aviation center last week. Predictions were that it will certainly not last as long as the previous record of 678.53 mph set by Maj. Richard L. Johnson, USAF, in an F-86 North American F-86A at Edwards AFB, Sept. 15, 1946.

Two prospects for early challenges were under consideration. Canadian sources indicated that Canadian, Ltd. was attempting to try out one of its Sabres, powered with an Avco Canada engine, rated at approximately 7,300 lb. thrust, without afterburner.



VACUUM FLAMER PART on record by

"This additional power would be an important factor."

Washington sources indicated that Jacqueline Cochran, U.S. women speed flyer, who reportedly has already asked to fly a U.S. Sabre, and received a public refusal from Col. Hoyt S. Vandenberg, USAF Chief of Staff, is negotiating now to fly by the Canadian plane.

Another possibility is that three might be needed attempt to boost the record with an F-86D, flying as a battery day at Silver Sea.

Beech Exports

Top \$18 Million

Beech Aircraft Corp. in its fiscal year ending Sept. 30, 1955, has reportedly boosted the export to approximately \$18,318,357 (plus of planes) to foreign countries despite dollar shortages and shortage of competitive firms abroad. This all-time company high more than quadrupled its 1953 export total.

Deferrals, the company's foreign sales rose to 40.1% of all lightplane sales abroad. And it expects considerable expansion on the basis of low business. New distributors have been set up in Peru and Pakistan and dealers in Italy, West Germany and West Africa are actively developing markets there. Beech export division manager Michael Newberger has made a personal flying trip through South America discussing and assessing needs of military forces and business firms.

The company is expanding its Wichita, Kan., facilities as well as its sales. Beech expects that new business production will open up new marketing possibilities abroad and also plans to push its Meteor military trainer.

New O'Konski Blast At Kaiser Contract

A demand that Air Force Secretary Thomas F. Green immediately cancel all military aircraft production contracts that have been awarded to the Kaiser Power Corp. has been made by Rep. Alvin E. O'Konski.

The latest of O'Konski's blasts against Kaiser Power's military contracts was made in a telegram to Secretary F. Green, after the Air Force had revealed the prices being paid to Kaiser Power and Fairchild for production of the new aircraft—the C-119 military transport (AVIATION WEEK Nov. 29, p. 2).

According to the figures furnished Senate Select Committee by USAF, Kaiser Power is being paid \$1.3 million for each C-119 plus \$1.5 million for \$200,000 cost for building each the same plane.

"I changed in a speech before Congress last March that the Kaiser Power price for this plane was exorbitant," O'Konski said. "But an amendment was later derived by House Kinsley. It now appears that the price is even more exorbitant than I had been told at that time."

"That raises the whole thing seems to me that the Air Force leadership who received these historic figures did not even prepare an accurate report to set out the whole, either be attempted to patch this historical discrepancy in price. The contract and its terms like it must be canceled immediately and new work to be done under a new contract, either be attempted to patch this historical discrepancy in price. The contract and its terms like it must be canceled immediately and new work to be done under a new contract, either be attempted to patch this historical discrepancy in price."

USA explains the price differential on the grounds that the KaiserPower price includes production facilities and new equipment for production run while Fairchild's price at that time included new work of a substantial production run achieved.

Travel Agent Rates

International Air Transport Association conference meeting at Cascais, France, have settled on a temporary rate commission rate for travel agents. They set a 7% commission on all international ticket sales except intra-European.

The agents had fought the existing 6% coach commission, which compares with the long-standing 5% "normal" commission. With coach sharply decreasing transatlantic travel and expected to exceed the old high fare travel and not boost overall volume where "overseas" (AVIATION WEEK Nov. 29, p. 57), the lower agents appear to have won a victory with the 7% commission.

Inter-Europe ticket commission remains 7%.



CANADIAN ORDER CERTIFICATED

De Havilland Canada DHC-1 Otter has achieved the distinction of being the first single-engine plane to be certified for use in both under Category D of International Civil Aviation Organization regu-

lation. The Otter is in production at Toronto. Powered by a 600-hp. Pratt & Whitney R-1190, the plane seats 14-16 passengers, has a top speed of 164 mph, and cruising range of 800 mi. Gross weight is 7,600 lb.

Boeing Jet Liner

- Company starts project, keeps design a secret.
- But prospective buyers urged to "wait and see."

Boeing Airplane Co. has started cutting steel on a few parts of a jet transport prototype, slated to fly in mid-1954. In calculating production before you compete, yet keeping its design and performance a secret from customers Boeing is trying a hidden ball play on Douglas and Lockheed.

Boeing is running with the ball but you can't see it. Meanwhile, customers are looking over Douglas and Lockheed bookshelves, but are not talking contracts.

Boeing urges the customer to wait and see. When the product is revealed, with efficient delivery dates promised, the customer to sign on the dotted line may be strong.

Active Campaign: The manufacturer reported confident they have will work on the three customers said to be the rivals of Boeing's B-37 and B-52 replacement before building team with Douglas and Lockheed, who have built no great jets of their own design.

At the last possible moment, but previous to early in this winter, Boeing will start an active sales campaign—by itself its jet transport design—first with the Air Force at a convertible tender and transport and then with the airlines. Completion of full-scale mock-ups of vital sections was said the sales program. But Boeing has not yet decided that stage.

The company has recently released spare pilot facilities for the early stage of parts fabrication. The machine will be necessary before actually a Boeing

capacity told Aviation Week, because this is the only way to be met component and equipment features to gain the most efficient maintenance and operation.

► The Boeing Design-Boeing's designers and top management have not allowed their jet transport design to be circulated within the plant. However, a few privileged limbs about Boeing design philosophy in this project are available.

The engine for the prototype, at least is almost certainly the Pratt & Whitney J57, a reliable source indicates. This is the first U. S. "lightweight" engine already in service test.

The wing is expected to be similar in many respects to that of the B-52. The transport type (thickness) is not constant. The ribbed panel tapes rapidly from an extremely thick root. The fuselage paneling has a most gradual taper to the tip. Boeing designers reportedly have discarded many wing designs like the "cove-neck" (Aviation Week Nov. 17, p. 22) in favor of more complex and basic.

A Boeing official says the B-52 wing shrank up better in actual tested tests than did heavier shapes with more theoretical advantages.

► Package Ideas: As to the engine mounting, a Boeing jet transport design study, two years ago stated that good reasons along forward of the wing are an important means of reducing shock loads indicated as. The B-52 bomber design gives evidence of this philosophy, and passenger transport could require a somewhat rate than a bomb load.

Low a known about Boeing's jet transport fuselage when, because little can be borrowed from the bomber. Also, the second believed airline companies on high density seating capacity may have started some models now building on jet transport fuselage design.

Cuban Group Buys

PAA Havana Airport

A syndicate of Cuban businessmen has acquired Rancito Boyeros, the international airport serving Havana, formerly belonging to Pan American World Airways, which had spent more than \$2 million developing the field.

The airport was one of the numerous facilities developed and operated by the owner when it went into Latin America in the 1930s, but a few of these countries had airports or were willing to build.

In the past several years PAA has been "getting out of the airport business" but has sold more of the installations it had set up. Business development started in 1953 and is now used by 15 international and domestic carriers.

It is located 13 minutes from downtown Havana.

The former owner recently completed plans for expansion of the field, which has been turned over to the new owner. These plans called for extension of the main runway from 4,883 ft. to 10,000 ft., construction of a parallel 10,000 ft. runway and a new terminal building.

NYA to Extend Mail Services

New York Airlines, certified mail, parcel post and passenger carrier service, plans to continue its mail service Dec. 3 on the north segment of its approved AMT-1 route which covers Mt. Vernon, New Rochelle, Scarsdale, White Plains, New York, Greenwich, Stamford, South Norwalk and Bridgeport, Conn., and Philadelphia, Trenton and York, Pa. to La Guardia Airport, New York.

Due to lack of airport facilities at Scarsdale, this can be done only in the afternoon. Other routes have made long flights available on small jets, but this and similar closed routes were most profitable.

NYA expects to lose on third Sikorski S-55 delivery in time to participate in the new operational phase. The carrier began a mail carrier shuttle service between La Guardia, Idlewild and Newark Airports Oct. 15.

England Gets ICAO Meet

International Civil Aviation Organization will hold its seventh large-scale Assembly in Brighton, England, beginning June 16, 1955. The meeting will last approximately a month.

Originally France and England had submitted invitations to ICAO, the French withdrew when it learned that Britain was particularly anxious to be host to the Assembly.

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YARROW PUTS JETS ON ITS C-46S

A Curtiss C-46 belonging to Empire Vectors Airline Co. (Young) flew with two small engines about 100 miles before engine trouble stopped. The engine apparently

has performed enough of the work to cut off all its planes. Young took his plane to the airport, but the engine was not working. The engine apparently



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AERONAUTICAL ENGINEERING

Are You Using Your Technical Manpower Effectively?

Ask Your Engineers These Questions:

- What jobs are you now doing which could be turned over to technical specialists?
- Could any of your duties be simplified so that they could be turned over to subordinates?
- Could any of your administrative detail work be turned over to non-engineers to lighten your workload?
- How can our training program for recent college graduates be improved to make them better equipped to meet you?
- What changes or improvements in organization or planning would lessen the workload of the engineering staff?
- Do your working conditions enable you to work at peak efficiency?
- Can you name any people who would make good technical assistants or who would be interested in turning for such work?
- Have you any recommendations for the indoctrination program?
- How can shop personnel be made more effective in their assistance to you?
- Are your communications with management satisfactory?
- Could any of your routine work be performed better by mechanical aids?
- How can we utilize the engineering staff of detail work?
- Do you have any suggestions on cooperation with local schools and colleges?
- Could any engineering operations be changed to reduce waste time and motion?

A Plan for Stretching Engineer Supply

Professional group's study indicates how industry can improve its inefficient use of trained people.

The continuing shortage of trained technicians is particularly acute in the aircraft industry. Each company needs more engineers than it has. Each company is using every means to hire these engineers from schools, from other industries, from other companies within the industry.

But each company must inevitably get less than its target quota. There aren't enough engineers to go around. There are not enough graduates to meet industry's needs. And, with the high school enrollment on the wane, this is no relief in sight.

How can you solve this problem? **►Use What You Have.**—Get productivity greater since relief from the shortage. If you can use your engineers more efficiently—without imposing the physical burden of more hours or more weight—you can go a long way toward beating the shortage.

How can you go about utilizing existing resources to the fullest advantage?

This has been studied by the National Society of Professional Engineers, and out of its studies has come

a clear, and detailed report to industry.*

Second in a series begun in 1951 by the NSPE, the report pools the experience of almost 500 companies employing engineers. These firms employ more than 100,000 engineers, and a total of almost 1 million people. They operate almost 5,000 plants.

They need 11,000 more engineers now, and will need an additional 5,000 before next March.

These engineers—at least 85% of them—spend more than three-quarters of their time in technical work but who work as sales, customer relations, in digital relations, executive duties, ad writing, patent law.

What they report should be of value to industry everywhere. Here is what they say:

►Weak Indoctrination.—Most companies report that engineers are put to work immediately after leaving

through personnel routine. A majority of the firms have an indoctrination program whatsoever for recent engineering graduates. Almost two-thirds of the companies have no such program for recently hired, experienced engineers.

Thus, many engineers work in a vacuum, cut off from their own making, which asks them of little knowledge of company policies and plans, and have engineers fit into the general scheme.

The report says that engineers in indoctrination programs "... perform the double function of telling the engineers about the company, its policies and how things work, as well as thoroughly orienting them on methods and procedures which he is to use on his work. He is therefore better able to produce at peak efficiency."

Post-graduate training is an integral part of any indoctrination program. This training and selection of key personnel go hand-in-hand. Such programs make it possible to eliminate results before the company has invested much money in them. It enables the capable man to reach the top level of productivity in shorter time.

Most often there are two phases of training programs. A short one for experienced personnel which

* "How to Engineer the Introduction of New Personnel"—National Society of Professional Engineers (NSPE), 1100 North 17th St., St. Paul, Minnesota 55109.

reply on working areas and methods. A longer one, generally tied in the heavy industries and communications business, takes years to get through a two-year course aimed at thorough familiarization with company practices.

Organization Details—Considerable shock has been over the problems of such organizations by many of the companies reporting. The tendency is to oversize top level engineering, at the same time achieving economies in administrative and clerical roles.

Clearly defined delineation of authority and responsibility is cited as a need by the report. One company says that

clear operation being better than some relief of engineering work load is obtained by a pilot engine maintenance who set up an engineering planning group. This department takes over details of estimating, scheduling and budget control, and so gives administrative assistance to project engineers.

Supervisory training is another item on the recommended list. With adequate programs for such training, supervisors are able to get the most out of people assigned to them, and to have him to suggest and plan their work for increased efficiency. A life knowledge of the way people operate

also helps the supervisor to provide the personal touch.

Better planning, says the report, may be a reinforcement of an obvious suggestion. But some return to the NSFE poll urged that work planning be more carefully studied for comprehensibility. Other replies suggested that engineering work loads should be scheduled in close consultation with sales and operations departments, and reviewed at frequent intervals.

Project Engineers—Of interest to the aircraft industry is that the report singled out the "project engineer" system for attention. This procedure, long standard in most of the aircraft business places, attributes and responsibility in the hands of a single individual. He worries about the entire project from design through production. Generally, the project engineer is a progressive executive instead who will be shifted from one job to another in order to familiarize him with the company procedures.

Other companies reacted that moves to new quarters with more space and less noise need the engineering efficiency. Minor additions, such as more telephone stations and elevators of traffic through an office, helped to boost engineering productivity.

Other Suggestions—These additional suggestions were included to stimulate thinking:

- Let women do the work with engineering details to the best of their capabilities.
- Increase the use of standard position to eliminate detail work.
- Select and encourage ideas from all personnel levels through the medium of the conference.
- Let young engineers participate in conferences affecting basic technical decisions.
- Use neighboring university facilities for training and consultation.
- Give paid, time-off periods for attendance at training courses and symposia.
- Compensate with perfection when the next best thing will save time and money.
- Improve working conditions with or spend by more light, environmental, equipment, lighting.
- Use punch cards and similar aids to obtain engineering data easily.
- Engineering Support—The use of supporting personnel is underscored by the survey as one of the most productive methods to obtain full use of engineering manpower.

Many of the companies report that many jobs can be standardized or simplified by breakdown so that they could be performed by non-engineering help. They add that engineering management is needed to build these support

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The "Golden Year" Cessna 370 is new in appearance, new in performance, new in ease of use and safety. All of the new features can't possibly be listed here—but if you, like so many other businessmen, find that there is a place for an airplane in your business, are the new low priced all-metal Cessna 370 of your Cessna Dealer. He is listed in the yellow pages at your phone booth. Or write: Cessna Aircraft Company, Dept. 51, Wichita, Kansas.

source not listed here, but covered in the report, is the use of college engineering students as assistant engineers. The NSPE says that such use depends on agreements and relations between the college and the company, but it is going to do the job in a worth investigation.

Summer vacation assignments offer a possible use of college students. About two-thirds of the reporting companies employ students during these periods. Interestingly enough, only a small percentage of these men join the company following graduation. The NSPE says that this indicates the need for a company selling job.

Most companies agree they would have summer engineers if they were available. About half of the companies polled have found it feasible to use summer engineers, and almost one-quarter have them on the staff.

Stanley Keady-Curtis standards have been adopted by a number of the companies to college the technical pool. 1915, for example, have adopted the requirements for experience. About one-quarter of the firms have adopted standards for both age and education. Standards for physical condition were relaxed by 19% of the firms quoted.

No large use of part-time engineering personnel is reported. In the group, college teachers are used most frequently, followed by active engineers, non-engineers engineers and high-school teachers in that order.

Personal Training-Mentoring is still in the line of industrial training of engineering personnel. A rough problem for about 45% of the companies. Highest rate of change occurs with mechanical, electrical, machine and chemical engineers.

Benefits—Disincentives, insurance and pension plans and incentive (bonus pay, profit-sharing and advance work) help to keep turnover at a minimum, according to the report. Most of the companies find that the incentive features are more important than the benefits. They list the importance of incentives in this order:

- Opportunity for advancement.
- Stability of employment.
- Education through extra training.
- Financial security.
- Profit-sharing plan.

The report says that the regulations of the Salary Stabilization Board have proved costly in terms of lowered output and loss of key personnel. Action by the NSPE resulted in some freezing of the engineers from firms of the Board's ruling. As of July 1, 1952, all professional engineers employed in a professional capacity are exempted from salary controls.

• Military Deferrals—Now, what about military demands?

Lack of action by companies in re-

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ingering defense is reported. Only 15% of the companies requested assignments by young engineers eligible under Scientific Service. A higher number, 47%, said that these engineers in the Reserve be deferred.

NSRF is taking an active part in publicizing the importance of the proper use of engineering manpower by the armed services. The report states that engineers serving in a defense industry are among those countries as much as the soldiers in uniform whose lives depend on the weapons which the engineers develop.

► **Scholarships & Grants**—Financial assistance to further engineering students is an integral part of the program of many companies. And it is in the form of full scholarships or specific grants against tuition for certain periods.

In addition, some firms make grants to colleges, donate laboratory equipment and instruments, and work with the colleges in program planning.

But the report indicates that not enough money is being put into teaching. A survey of teaching salaries made by NSRF in 1951-52 and 1952-53 indicates that, on average, increased slightly to \$3,427. Professions in the latter year earned an average of \$5,350.

► **Tuition**—Nashville says the Service—These figures show very clearly that unless some additional pay incentive is given professors and instructors in engineering colleges, there will be little encouragement for engineering graduates to enter the teaching profession. At present, an engineering graduate of the high caliber desired for teaching would be offered an attractive starting salary by private industry. If he entered the teaching profession, he would receive a starting salary of about \$2,500 a month.

The report recommends a course of procedure: Industry "... must help to attract competent men to the teaching profession by providing supplementary sources of income."

It cites the case of a northern textile mill. The mill hired the local high school science teacher during the summer months. His salary for that period was the difference between his teaching salary and the pay he could have made in private industry. Thus the company retained his teaching a continuing supply of high school graduates for employment in their mill.

► **Utilization Checklist**—Industry is urged to make a survey of its present status to find out how to utilize its manpower more efficiently.

The report suggests a checklist, such as printed on p. 21 for this purpose.

Chief executives of the checklist is in strengthening the engineering staff to think about these methods and to suggest new ones.



STROH BALLOON is used for launching new North Pole by GMR systems. Balloons of synthetic latex balloons, used for instrument recovery, are in background.

Team Probes Radiation Barrier

Man's ability to penetrate the radiation barrier and survive in space may be determined from data gathered as Navy's balloon rocket experiments in Cleveland this summer.

Instruments and experimental rockets, carried as high as 50,000 ft by plastic Stroh balloons, were used to measure the charge and energy spectrum of the primary cosmic radiation at extreme altitudes.

These radiation phenomena, as yet incompletely understood, may be the determining factor in man's conquest of space.

► **Balloon-Rocket Shots**—Most spectacular of the tests were the balloons carrying Navy Decca rockets to altitudes for automatic firing. Above most of the earth's atmosphere, the point of firing, these rockets penetrated the lower strata of the ionosphere to altitudes of 40 mi.

The Decca carried either a Geiger counter or an ionization chamber which measured cosmic radiation. Data was teletransmitted back to the U. S. Coast Guard Technical Station, which served as the launching vehicle base for the experiments.

Another series of tests used the Stroh balloons to carry neutron emission plates which measured the passage of cosmic radiation through photographic material. The plates were flown to about 50,000 ft, extending the range of data obtained during earlier experiments at lower altitudes.

► **Special Techniques**—Launching the balloons from the deck of an icebreaker required the development of special handling and launching techniques, be-

cause the deflated balloon length was about 150 ft., and the available deck area of the icebreaker was only about 42 ft. by 62 ft. Furthermore, when the balloons were inflated with helium, they



GOING UP, Stroh balloon carries Decca rocket for ionization in 40-mi. altitude.

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COSMIC RAY APPARATUS gets last-minute check before flight of Explorer II toward New York University scientists. This apparatus contains sodium iodide.



DRACOP ROCKET ASSEMBLY is checked by State University of Iowa scientists, before high-altitude launching. Rockets are 10 ft. long, have diameter of 8 in.

toward about 150 ft. above the dark flying. As launch is set, wind at all would have resulted in damaged but loose and shunted flights, so the ship had to nullify the wind by steering downwind. In water control such large rockets or completely covered with ice, this was not an easy task.

In spite of that, all 14 scheduled flights were launched, and eight of these flights completed their tests successfully.

The site for the experiments was as near the geomagnetic pole as possible. That area was chosen because of the

pole the earth's magnetic field produces a maximum deflection in entering cosmic ray particles. Measurements in this region represent the closest approach to "pure" cosmic induction conditions on earth, it is believed.

These experiments are part of a program being carried out by the Office of Naval Research and the Atomic Energy Commission, General Mills, Inc., inside the balloons of its Aeromedical Research Lab, scientists from the State University of Iowa controlled the rocket balloons, clouds, and scientists from New York University the balloon men.

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Convair B-36H Flight Deck

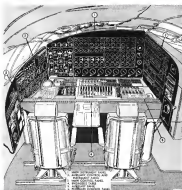
There's the last detailed glimpse into the new Comstar B-339 bomber's cockpit, showing provisions for the airplane commander, navigator and flight engineer.

This latter station (right) is the major change in the B1 over previous B-10 models. Full flight cushions are now used, one to rest during take-off and landings and during long runs, which often stretch out to 30 seconds.

Improved night lighting at the various cockpit stations and better radar and other electronic devices have also been fitted to the B-50D.

The big bomber, which will be in production at Ft. Worth, Tex., into 1974, has six 3,600-hp P&WA Bort60s and four 5,200-hp Daimler-Benz 147 jet engines.

8-16 units are being activated at two additional USAF stations: Waller AFB, N. M., and Ramon AFB, Puerto Rico.



ABOVE: Ten-man flight crewmen station is located directly behind E-3B's cockpit.

REACTIV Nizkor's work station



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MANAGER (NAME)	2. SIGNED BY
APPROVAL	3. SIGNED BY
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FINANCIAL

Projected Aviation Sales & Earnings

MEMBERS BY SEX	Sales			Distributions Shirts		
	1987	1988	1989	1987	1988	1989
	(Millions of shirts)					
Boys	522.1	549	575.6	38.41	41.08	44.41
Young-Men/Boys	176.7	191	208	11	12	13.04
Young	395.3	358	367.6	4.94	7.90	10.08
Women	527.7	539	549	3.73	3.96	4.04
Young-Women	291.1	309	318	0.86	0.88	0.91
Women	236.6	230	231	29.00	28.04	28.54
Boys/Women	117.7	120	120	1.07	1.09	1.09
Results	67.4	501	590	0.69	4.43	5.14
Net	21.9	80.9	146	0.04	0.04	0.14
ASBLA						
	Gross Revenue			Distributions Shirts		
Authorized	510.5	501	500	54.81	47.78	41.81
Authorized	39.1	40	40	4.94	5.08	5.04
Unauthorized	100.9	100	101	1.04	1.00	1.01
Pop. American	149.5	150	149	1.07	1.06	1.07
Pop. Foreign	41.4	41.6	41.6	0.04	0.04	0.04
Total Pop. of Sales	191.3	191.6	191.6	2.14	2.10	2.10

a: Referring b: Excluded JSTOR The Folio Group

Continued Rise Seen in Air Curve

Included with the general industry surveys are specific forecasts of 1997 sales, earnings, and dividends for the individual companies, usually prepared by the service.

• **Election's Effect**—The general absorption of Value Line as of particular interest in view of conjecture surrounding the future level of aircraft procurement under a new Administration publicly committed to a drastic cut in government expenditures. The issues remain.

- It would be foolishly politically for a new Administration to shift economic procurement approaches in the present atmosphere of international uncertainty.
- The easiest method to arrest any recession in business activity which might develop and the one most acceptable to the voters, would be an acceleration of investment expenditures.

► **Rome** has a *line-up* of measures that do not require any new legislation (or new programs) at a second site for the purpose of the next two years and that the excess profits tax will be lowered next year and removed in 1994. Other laws include that companies and dividends of asset manufacturers

In projecting the level of business now available, the service declines

"Present order bookings amount to about three years' business on average at the 1952 rate of deliveries. While 1952 sales volume will run about 30% above the 1951 level, there will be further production increases during the first half of 1953 so that sales of aircraft components in 1953 promise to show another wide gain."

Dividing profit margins, a further test of optimistic pessimism in the Value Line's markets that "... the ratio of net income to sales is likely to be modified in the excess profits tax levy in qualitative prices value. We have projected 1993 earnings on the basis of a 51% excess-plus-tax rate, a 24% excess profits tax levy and a 69% overall ending rate. These figures represent an averaging of current rates of 32%, 12%, and 10% excess profits tax, and 78% more overall rate which we expect to be effective through June 30, with the lowest rates which we expect Congress to make effective July 1 (namely, a 30% excess-plus-tax rate, a 19% excess profits tax levy and an overall

* Profit Margin Uncertainty—As a re-

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accelerometers

American accelerometers are made by Shottum Laboratories for measurement in ranges as low as ± 1.5 radians per second per second.

The design permits close boluses against linear accelerations effects with a high degree of mechanical shock resistance and leads to a damping characteristic relatively insensitive to temperature.

The transducer element, an unbonded strain gage bridge, provides an electrical output proportional to applied angular acceleration for recording or telemetering in conventional a.c. or d.c. circuits.



ENGINEERS' NOTEBOOK



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New plant facilities and methods at Marman have lowered delivery time on standard band clamps to two weeks. This is but one of many advantages brought about by Marman's standardization of design for application which has become recognized around the world. Today they are used throughout industry for all types of hose and duct connections, attachment of accessories, securing of wiring and miscellaneous equipment.



The Quick Coupler type with pin-and-socket joints is particularly useful where ease and speed of assembly are important.



The T-bolt which provides even circumferential tension from clamping action and an especially tight seal are required.

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mult, the aircraft service looks to alternate profit margins of between 1% and 4%. At present, with most aircraft companies paying the 10% rate, most airlines are not anxious to accept these 1% or 2% rates. Other elements, however, indicate that, were the correct profit tax a national military contracting officers may take this factor in consideration in the price determination process when viewing profit margin.

The specific sales and earnings ratios for the nine aircraft companies analyzed in detail by Value Line are summarized in the table on p. 32.

The Transport—In receiving control funds in the air transport group, the airline service notes some improvement in earnings for the current half. The contract in traffic reduction studies in the year appears to be accelerating with third-quarter reports revealing a better control over expenses. Nevertheless, full year earnings will be down sharply, possibly by as much as 35%.

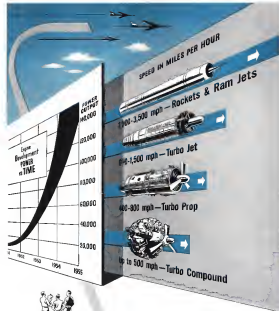
The expanding capacity of the industry in the form of new equipment to be delivered together with the increasing popularity of air travel, is credited by the service as leading to new high revenues for the group in 1955.

A cautious tone on the profits outlook is noted, however, with the disclaimer that, despite higher revenues and important operating economies to be derived from the use of the new equipment, earnings are not expected to register a solid increase in 1955. The heavy expense of introducing new planes into operating schedules will have to be charged to income, while higher interest and depreciation charges will drain off a large portion of the income in revenues. At the same time the expected extension of aircraft travel will require rate structure and fuel factor pressure on operating margins.

On balance, earnings are expected to be, undoubtedly higher, although qualified results again will differ markedly from the industry norm.

No Jet—Some jet transport developments are expected by Value Line with the observation, "Despite... some sensible publicity... only limited and experimental service patterns are likely to exist on commercial routes before the late 1950s. Introduction of the turbo-prop engine, however, could cause a great deal of interest. While most of the new planes currently being received are equipped for conversion to turbo-prop, such a switch to the world, nevertheless, could substantially capital expenditures." The outlook on gross revenues and earnings for the airlines are also summarized in the table.

(The figures reviewed are those of Value Line advisory service and not necessarily those of the writer. Neither the writer nor American Wire assumes or endorses the accuracy of the actual



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AVIONICS

How the Navy Drone Got Its Eye



1 First successful "television eye" for piloting drone aircraft, and the foundation of the severely maneuvered Navy drones used in Korea, was developed by Brewington Knott and Davis in this plane during early years of World War II, the company says.



2 Success in the RF-7 Phantom II program, the original equipment was quite bulky and heavy (500 lb.). The TV transmitter mounted in the T-10 to T-12 (1957) system. Camera, shown installed in early test plane, weighed 40 lb. and occupied 5,000 cu. in.



3 Continued software development resulted in the Phantom II system weighing only 20 lb. and whose size was only 350 cu. in. The camera contained a motor and control switch automatically adjusted lens aperture to brightness of scene being viewed.



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There is a flight slot in the giant Boeing B-52 Stratofortress. An eight-jet heavy bomber, the Stratofortress is a fast, heavy bomber to the B-47 Strategic nuclear bomber. It's 153 feet long, measures 185 feet from wing tip to wing tip, and is powered by eight Pratt & Whitney J-57 engines. Speed and other performance details are carefully guarded secrets.

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port radio transmission to see its "last
radio" in operation, we got as detailed
and detailed a description of a GCA radar
"view" of a disabled Air Force C-46.
We also learned first hand the need
for adding a radio detector tower to
GCA and the need for radar beacons.
Air Force 7417 had missed a 500 ft.
casing instrument approach at Mitchell
AFB, 18 mi northwest of Midland.
During the approach, the C-46 lost one
engine and the other was malfunctioning.
Fighting to gain altitude while
missing the remaining wing engine,
the pilot got lost.

A disabled airplane, unsure of its position
at 1,300 ft. altitude in extreme
misty weather near a downtown,
highly populated area presented an
alarming problem to the Midland tower
and to the pilot who talked at ditching.
This, however, might elude the
GCA tower still took charge of the
VFR tower case.

Not having followed the control course
of the C-46, the question is the Midland
tower was "What of the missing
plane on the radar scope was the dis-
abled plane?" At its low altitude and
probable distance from Midland, it was
possible that the C-46 wouldn't show up
on the surveillance radar.

If the C-46 had been equipped with
a transponder beacon it could have
been instantly identified. Even a radio
direction finder scheduled to be in
operation at Midland's GCA base,
would have speeded identification. To
ask the C-46 to continue an identifying
maneuver at 1,300 ft. altitude, with-
out first knowing its position, would
have been risky.

Mitchell's tower called for a long-



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ment radio transmission to enable its
radio direction finds to get a fix. The
pilot's voice showed the tower at
Mitchell called for the search, and still
another long coast.

Midland thought it had spotted the
C-46 high level on its reported head-
ing. Then Mitchell, got its fix, Midland
identified the C-46 and gave the pilot
his position, south of Mitchell.

In the C-46 cockpit, tension eased as
indicated by subsequent radio transmis-
sion. The C-46 attempted another ap-
proach at Mitchell, coming down to 500
ft. without losing contact. With a
11,000 ft. ceiling, moderate breeze, re-
ported at Midland, the C-46 pilot re-

quested a GCA approach then.

GCA operator Annawanda radio-
ly returned the C-46 very low level, giving
him continuous and returning
position reports. At one point Annawanda
thought he heard the C-46 speak at
Mitchell, and queried the pilot. "No
transmission, check position," the pilot
replied. Several miles out, the C-46
misheard visual contact and made a
successful angle-course approach and
landing.

When the plane was down, Annawanda
left his radio scope for a minute
and to watch the C-46 taxi in. Mitchell
tower, indicated: "Radio man was very
good."
—Philip Klaus

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HOWARD

PRODUCTION



LARGEST EXTRUDER IN TODAY'S is the 5,500-ton unit built for the Ford & Lloyd Hooper & Mfg. Co. by Hydramex. There are three presses of this size now in operation.



LARGEST EXTRUDER PLANNED under heavy press program was the 25,000-tonner, engineering work on which has been nearly completed by Hydramex. There are no present plans to build it. Figure of man (arrow) indicates large size of the machine.

Extruding Giants Coming Along

In a year these units should be squeezing out parts; they may also supply billets for heavy forge presses.

By Irving Stone

Big extrusion presses—little-handled but vital components of the giant forge machines in the Air Force's heavy press program—are being pushed to completion, to be fitted into the production schedule for military planes.

So, all the units are being built by Lacey Hydramex, Inc., New York, and two in United Engineering & Foundry Co., Pittsburgh. In addition, the rebuilding of a couple of big German extruders is in the works. These presses are scheduled to go into service in late 1955 and early 1956.

► **Probable Uses**—Parts likely to be made on the heavy extrusion are reported to include armor plates, beamguns, ribs, propeller blades, wing fittings, and as-

sembly structural steel members (cylindrical sections, later split and flattened into plates).

Many of these parts could be formed by forging as well. But whether they will be made by extrusion or forging will depend on the particular design.

On the cost side, extruding has the advantage, it is reported, because the cost and maintenance are considerably less than in forging operations. Also, extruding will give parts with much closer diameters to the finished requirement.

► **The Billets** Too—Another place where the big machines are expected to play a large part is in the extruding of stock, to be worked on the forge presses. This is being done now for the smaller presses and probably will be carried over

for supplying new steel forms for the giant forges under the heavy press program—it is reported that metallurgical characteristics of extruded stock are better than cast or rolled material in the big sizes as a result of the hot working put into the extrusion.

► **New Potential**—The press from today's extrusion press industry is the turning of the "big billion" in the coming years might well be substantial, from the engineer's point of view.

Production-wise, the press will generate a tenfold step forward compared to the capabilities of present-day extruders.

The largest extrusion presses now installed in this country are three 5,500-ton units. The new presses will range from a smallest size of 5,000 tons to a largest of 20,000 tons, with 12,000 and 15,000-ton units in between.

► **Size Series**—On the 5,500-ton extrusion press, the maximum size billet need be about 14 in. in diameter and can give an extruded cross-section of not more than 25 to 30 sq in. Compared to this the 20,000-ton press could use a billet of about 22 in. in diameter to produce an extruded minimum wall thickness not exceeding 100 sq in.

On the small press, a flat piece of about 50 in. in width can be extruded. On the 20,000-ton press, this dimension theoretically could be extended to about 70 in. However, a 60-in. width is seen as a good practical goal.

The new extrusion presses with smaller pressures than the biggest ones there to be built under the program obviously will give precision-machined smaller widths and cross-sections for parts. But in the overall, the press designers and operators see the new potential in making real progress in the extrusion field.

► **Largest, Chances Good**—Originally, a 25,000-ton extrusion press was included in the heavy press program. Like the 15,000-ton deep press of the program (Aircraft World, July 7, p. 10) there are at present no construction plans for that 25,000-ton extruder, although engineering work on its design already has partially been completed by Hydramex Inc., New York.

Domestically, it is about four times the size of the 1,180-ton Hydramex extruder mounted by Cantor Thompson Hooper & Mfg. Co., 212 R. Long and 50 E. 10th, against the smaller unit's 51-ft. length and 7 ft. 10 in. height.

The 25,000-ton size is considered the limit in the light of present-day technology considering the stresses that would be imposed on the machine. For any larger size, or other new design approach would have to be employed.

Even with a press of the 20,000-ton category, the machine "handles" about one inch in each direction. This could take it only out of the operating position

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hours (not would accurately reflect design changes in size above 25,000 tons).

► **First in 1953**—Of the extruders now being ordered under the heavy gas program the first is scheduled to go into operation late in 1957. This will be a 11,200-ton, vertical press being constructed by Schloemann in Germany.

Eight more extrusion presses are scheduled to go to work in January 1958—about the same time that the first new heavy large press (50,000 tons) is to go into operation. These eight will be a 50,000-ton, 12,000-ton and four 8,000-ton units constructed by Thyssen and a 30,000-ton and 11,200-ton unit by United Engineering.

Latest information indicates that still another extrusion press is being added to the picture total of one is being built up. This is reported to be a 15,000-ton vertical Hydraulic (Greece) unit.

► **More Familiarity**—It is believed that greatly increasing personnel will require less sophistication in design and the large extrusion presses then will be required with large design personnel.

A considerable background of extra size design knowledge has been carried over from the last war. Parts are already being laid down on the drawing boards for construction of the largest extruder that soon will come into the picture.

► **Commercial Role Possible**—On the commercial side when the megapress is over the picture looks brighter for constant use of the large extruders than it does for their heavy forging counterparts.

While it is generally agreed that the large large presses will only be used as steadily, with the military, and with very limited usage for experimental work, it is expected that the large as heavy presses will be used for turning out huge structural sections for new naval applications.

Then applications is now justified because there are no other facilities available to produce these very large parts. The extrusion press is suitable for that size—up to 100 tons in size and cost is relatively low compared with forging dies or rolling mill rolls.

► **Only One for Steel—United's** low cost gas gas extrusion process was confined to non-ferrous metals. The first extruder for steel was a 6,000-ton Hotch press and that went to International Nickel Co. at Washington, W. Va., in 1942. Since then, a few more original designs designed to work aluminum alloy were constructed for steel rolling by Hotch and in 1951 52 ton steel extrusion units—2,500-ton presses were built by the company.

Only one of the ten extruders in the heavy gas program is being built to squeeze out heavy metal parts. This one—a 12,000-ton unit—will go to Caterpillar Corp., Buffalo. All the others



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Why Boeing has undertaken "Project X"

Is a restricted area of one of its Seattle plants, the Boeing Airplane Company, is building a new prototype airplane which can be identified for the present as "Project X."

It will be a large, new type, jet-propelled airplane incorporating many engineering advancements Boeing has developed and proved over the past several years. It will be a demonstrator model, the basic design of which will be adaptable to two production models.

1. A versatile military airplane for aerial refueling of jet bombers and fighters and for organized troop transport paratroops fitted to the tempo of jet-age military tactics.
2. A high speed, economically operating airline transport for passengers and cargo.

Boeing has undertaken this program because it has long recognized and a real need in America for modern jet-powered equipment in each of these categories. The project has been underway for a substantial period of time. With the prototype Boeing will be able to demonstrate the capabilities of production aircraft in both the military and commercial fields.

The engineering follows intensively from the company's leadership in the application of jet power to large aircraft. Designing, building and flying the B-47 Strategic bomber and the new B-52 might Stratofortress have given Boeing a background of experience unparalleled elsewhere in the world. It has collected, for example, 14,700 hours of jet wind tunnel research and more than 9,000 hours of test and research flying. The Boeing Company is taking positive steps to apply this wealth of experience to advancement in the field of air transportation.

The prototype airplane—company financed—will be completed and flying in 1954. The project is being carried out with great efficiency, lead of highly successful experience with the B-47 and B-52 jet bombers. This will be another great Boeing.

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EQUIPMENT



First Report on Comet Hydraulics

BOAC engineer describes jet transport's systems, says carrier has had only minor problems.

By George L. Christen

British hydraulic experts apparently do not wholly share American concern over too-complexed systems and malfunctions in aircraft, at least in the transport field. "This is the impression one gets from a paper on the hydraulic system of the de Havilland Comet, recently presented at the Victoria, B.C. Transport Aircraft Hydraulic Conference by Sydney Oldfield, chief technical officer of the Chief Development Engineer's Branch, British Overseas Airways Corp.

However, a de Havilland representative in this country deprecates the American stand on complexity. "When your transports fly as fast as the Comet, your hydraulics will be complicated too," he said.

The Comet has no hydraulic system and no fuel lines (11 conventional, 501 field points out). However, four of the power systems conform to Lockheed practice (Lockheed Hydraulic Brake Co., London), and all components, except the servomotors, share no mechanical departure from perfectly well-tried design, this being a definite operational and maintenance advantage. Oldfield says.

► **Little Trouble**—BOAC ran the carrier last experienced little trouble with the Comet's hydraulic system as of the end of August, when seven Comets had built up a total of 1,590 flying hours. The transport has had leakage and what it felt were excessive system problems. But reinforcements (more servomotors and bits of the affected components) are probably eliminating this trouble.

The comment has engineers working piping and so more hydraulic compo-

nents, that air became saturated with hydraulic fluid during ground running. This caused outgassing rubber shock mounts to deteriorate and paint to peel. Inspected wiring at the compartment passed to be the answer to the air. Plus servomotor operating valves tended to stick, this was corrected by increasing the mechanical advantage from the cockpit control.

One or two engined-driven pumps have failed to date, but BOAC does not regard the failures as serious enough to warrant modification.

► **See Systems**—Oldfield described the Comet's hydraulic systems.

► **Main system** operates landing gear, steering, wheel and air (servomotors) brakes, flaps and fixed cockpit secondary servo units. Flood control valve service in the equipment bay.

Power comes from two pumps, one on each outboard engine. On-off mode is the line adjacent to each pump, an equipped by engine low pressure fuel cock controls.

In each pressure line from the pumps are a filter and flow indicator. Flood passes through a double check valve and joins in a common line coupled to a cut-out valve. From there it goes to the accumulator (all carry an initial air charge of 900-950 psi), selector valves and control units of the various systems.

The main system can power second-ary flight control systems if primary servo control system fails.

► **Servo control system** operates the "three control primary servo units. It is a self-contained system and cannot be introduced into any other system, or vice versa. It has an off-cockpit, filter flow indicator and cut-out valve just as the main system does. It also incorporates a pressure switch which operates a warning light and horn in the cockpit when pressure is low.

Flood is contained in the system's reservoir in the equipment bay. Power comes from two pumps, one on each outboard engine. Check valves are installed on the pump suction lines.

On the pressure side, flood is routed from cut-out valves to two accumulators, with a second line feeding the primary servo units. Two other accumulators are coupled to the alarm and elevator servos, with a maximum allowed pressure just below that of cut-in pressure. To give a slightly expanded period of power supply, should there be a failure of the servo control system.

This is to give time for power change-over lines to be opened.

The supply lines from the servo control systems are coupled to the side-

De Havilland Comet I

Approved Hydraulic System Component Life

Aluminum, rubber and electric servomotors	400 hr.
Control valves (pressure regulating)	400 hr.
Pumps	1,000 hr.
Wing flap servomotors	1,000 hr.
Steering and air (servomotor) brake steering cylinders	1,000 hr.
Main and nose landing gear actuating cylinders	1,000 hr.
Accumulators	1,000 hr.

All components are made by Lockheed Hydraulic Brake Co., London, with these exceptions: Brake control unit, by Dorchester, Worcester, by de Havilland

Flow indicators and shut-down valves	1,000 hr.
Selective valves	1,000 to 2,000 hr.
Pressure relief, ground test, and separate valves	2,000 hr.
Landing gear shock absorbers and thrust roller valves	2,000 hr.
Brake control unit	2,000 hr.
Check valves	2,000 to 4,000 hr.
Reservoirs and hand pump	4,000 hr.
Off-loading valve	4,000 hr.

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valve bearings, primary servo and valve housing with check valves to prevent feedback, to allow the supply lines. Pressure in the locking accumulation can be released only by the use of the servo and check valve controls, whereas pressure in the supply accumulator is released by means of the ground test and pressure release valve.

Emergency servo control system supplies hydraulic power to the flying control secondary servo units in the event of failure of both regular servo control and main hydraulic systems. It may also be used to ground test flight controls when engines are not running and no pressure exists in the servo control and main systems.

The emergency servo system is connected to the main system on the servo

and valve bearings, which feed flow into a common line. Check valves prevent fluid feedback.

Pressure comes from an electrically powered pump. Fluid circulates through the usual flow indicator and return valve to the valve housing of each secondary servo unit. A charge over valve is installed in the supply line and a flow indicator Microstatik flows in a warning light installed next to the pump system operating switch on the control cabin ceiling. Pressure switches operate warning lights placed next to those of the servo control system. The complete system is also fitted in the equipment bay.

Standby system is designed to permit emergency extension (through side pendant) limit of landing gear and

operation of flaps, brakes and steering in case of main system failure. It also operates the entire hydraulic system except the primary servo units in ground test.

An electrically driven pump pushes the fluid through a flow indicator and return valve to the valve accumulation. A check valve between the accumulation assures availability of accumulation pressure for pressing brakes, even though an upstream pressure relief valve has been opened. Accumulation pressure can be released only by several operations of the brakes.

Emergency pump system's sole purpose is to lower landing gear and operate main well doors.

Its pump is a twin unit, which is operated by one handle located on the right dash, the system contains a pump handle-operated check valve which isolates the hand pump system from the standby system when the handle is released from its stored position.

Windshield system operates the wipers. Originally they were operated by a single hydraulic pump driven by a hydraulic motor deriving its power from the Conquest's main hydraulic system.

Ground operation was satisfactory but no work in flight presented the wipers from working well. Arrangement was changed to include one electrically driven hydraulic motor per wiper. Each wiper drive is now self-contained and is entirely divorced from the main system.

Operation is reported to be "entirely satisfactory."

Servo-valves—Conquest's servo controls can be operated only hydraulically in flight. Servos are moved through hydraulic servo units connected to the usual set of pilot controls. These servo-drive units are described as Teledyne normally hydraulic units with integral valves. Flow of the servos is on hydraulic system line and the servo drives.

The servo-valves have a stroke of 0.425 inch as either direction. Being fixed to a servomechanism, the servo valve housing follows any movement of a flying control. In the neutral position, a hydraulic lock exists in the valve. When the flying member from neutral, the lock is broken. The cylinder moves on the piston side in the direction of valve movement until it has "caught up" with the housing and returned the valve to neutral.

This method is said to give immediate response of the cylinder, proportional to the rate and range of valve movement (providing valve movement exceeds 0.425 inch).

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an mechanically linked to the valve system, which valve is directly operated. Each valve control cylinder is connected by tubes to push-pull rods to control valves. Operating action is levered. Primary valves can be operated only by the servo control hydraulic system. Secondary valves can be operated by the main and emergency servo control hydraulic systems in flight, and by the standby system on the ground.

For aileron control, the primary and secondary servos are separate but identical. For rudder and elevator, the primary and secondary servos are arranged end to end inside a common body.

Aileron servos are located forward of center section nacelle spar. They transmit movement through cables, running over pulleys to a wire jack, which operates the aileron rudder and elevator servos are just forward of the nacelle pressure bulkhead. These servos are transmitted through push-pull rods, torque tubes and levers. Wing Flap Servos—The wing flap servos are in a single simple configuration, but the flight surface must be able to move to be capable of such low resistance of control.

Perfect control is mechanically linked to the aileron valve opening or attaching the flap is desired. In board they operate in a single through cables which operate push-pull rods. Oil-filled flaps are loaded with screw pins.

• Landing Gear—Main and nose gear are operated by single actuating cylinders. Main gear doors are servo-operated, nose gear doors are mechanically opened and closed. Hydraulic valves are used in all landing gear "leg" operating lines.

• Steering—Steering wheel, on the left of the cockpit, is mechanically connected to an aileron valve which causes wheel gear movement in the direction desired. Valve plunger is spring-loaded to its neutral position for self-centering.

• Warning Hook leads are dropped through other valves. One-way valve tank dump wheel steering. A cam on the steering mechanism operates a sequence valve to make the nose gear steering mechanism inoperative until the gear is down and locked.

• Wheel Brakes—Nose gear is equipped with Dunlop wheels which rotate on hydraulic brakes. The standby pump motor is switched on during all ground maneuvers, takeoffs and landings. To make this system's pressure immediately available should there be a failure of the main system. Standby system recommendations are the only source of supply for landing.

Field controls operate right and left brakes independently. A manual pedal control applies equal pressure to all

brakes through three separate control valves. Pressure is proportional to the control movement up to a maximum of 1,500 psi.

• Air Brakes—Operation of steady state brakes is conventional, no category operation is provided. Air brake valve is in the equipment bay. A lock valve in the supply line creates a hydraulic lock when desired in the air position.

• Accessibility—A principal feature of the Comair hydraulic system is accessibility. Many areas can be reached in flight.

In the equipment bay, accessible through a hatch in the fuselage floor, are the main, standby and servo control system reservoirs, sight assemblies, each with charging connection and pressure gauge. Also, the standby system pump and hand pump, remote valve, pressure and thermal relief valves, the ground test valve, return valves, pressure transducers and the hand pump reservoir.

Five other accumulators are located under the cabin floor and may be reached in flight through a hatch in the cabin floor.

Rudder and elevator servos are accessible through inspection ports in the fuselage cabin floor.

Not accessible during flight are the emergency servo control system reservoir pump, master and out-out solenoid and flap servos and engine-driven pumps, according to BAC.

• General Notes—All flexible tubing is made of natural rubber and solid lines are Tungsol, British equivalent of Plexiglas.

Shock efforts in the system are kept to a minimum by the 15 accumulators (positive type) which also help to supply standby power in the case of power failure.

The equipment bay, under the floor, contains many components and a good part of the piping. This bay is a permanent feature of the plane and is accessible in flight.

Find out a complete Lockheed 72 De Havilland has calculated the various hydraulic systems for comparison.

New hydraulic system, some installed in the Comair control in yellow and orange is not.

PAA Engine Shop

A half-million-dollar engine shop to handle some work available for PAA Avionics on World Airways' entire Pacific Alaska Division fleet is to be set up at San Francisco Airport.

Scheduled to begin operation in a few months, the shop will handle work, the engine has been doing in on-site construction, including PW-4, B-450s, B-250s and B-200s.

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The equipment can be used to prevent undesired hysteresis and eddy current effects in testing caused by frequency variation, or as a stability device of emergency power for automatic and synchronous equipment. It also can be used as a giant frequency standard.

General Electric Co., Special Products Section, Schenectady, N. Y.

NEW AVIATION
PRODUCTS

Universal Joint

A new universal joint developed mainly for automotive and aviation control applications where backlash must be kept to a minimum will assure absolute safety between input and output when used in phased gears, according to the manufacturer. Selling for around a dollar, the precision type joint employs 1-in.-diameter chromium-plated pins and surface-ground center blocks of steel at type 343 stainless steel. Army Spec. 72-91 was met by nickel-plating the outer surfaces of the



A new method for the automatic mass production of "drop forgings" is announced by Chambersburg Engineering Company.

The method is called Impacting; the process (illustrated above) the Cecomatic Forging Process.

The Chambersburg Impactor, a new and unique type of hammer, is the basic tool of Cecomatic Forging.

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TEMCO has built its reputation as a low-cost aircraft producer, and this fact has been largely responsible for the company's rapid rise in the aviation industry. But more than low-cost production is TEMCO's continuing effort to build into its designs not only lowest possible original cost but also low operation-maintenance cost. Such two-fold, low-cost building is clearly evidenced in TEMCO's own YT-35 BUCKAROO Military Trainer. The all-metal, two-place medium, low-wing monoplane can be delivered, fully-equipped, for even less than World War II trainers of comparable shape.

In versatility as both a trainer and a ground support weapon (when equipped with two .50-caliber machine guns and the 2.75-inch rocket) is characteristic of the design thinking that has helped TEMCO become one of the nation's leading prime aircraft contractors.



DALLAS, TEXAS

been built, which have precision-machined holes.

One unit is 14-in. long, 4-in. in diameter with two 5/16-in. screw holes in each fork at 90 deg., and has sockets to accept 1-in. diameter shaft or 1/2-in. diameter shaft.

Patents are pending on an oscillating-type joint, using molded nylon forks. Kajima Manufacturing Co., 331 State St., Binghamton, N. Y.



New Support Clamp

New, best-in-kind support clamp for use on jet engines, missiles, and aircraft will contribute to the control of vibration and chattering of components in flexible and rigid piping, according to the manufacturer.

The clamps, which are covered with a specially treated asbestos cushion, and fit snugly around pipes and tubes to prevent chafing, have been subjected to more than 15 months of testing on jet engines by the maker. They can be supplied in any number of sizes and shapes, in either AMS 6155 steel cushions plated to AMS 2480, or in AMS 5149 stainless steel.

Avinor Corp., Portsmouth, New York, R. I.

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The specifications characterize a new 400-cycle a.c. timing motor, developed for use in the guided missile and control industry, after successful accuracy and dependability under the most adverse operating conditions, its manufacturer states.

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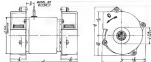
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Pilots get better perspective with Ransay Fuzin, a card device which gives heading information in graphic plane-viewing relationship to aid in approach of lightplane to airports. Sold by Wiggins Airways, Norwood, Mass., for 50 cents.

Future clamp is quickacting, suitable for riveting and aircraft assembly work. Of forged steel, part also can be used as tougher welding and other mechanical cutting operations, according to distributor, Connors Industrial Supply Co., 31934 Inglewood Ave., Hawthorne, Calif.



ANTI-CORROSION SPRAY

Common to that Ralls-Kayser jet is pre-treated by spraying Shell G&L VPE powder (vapor phase inhibitor) into engine which then is wrapped in paper for protection (Arlington Week Sept. 10, 1994, p. 48). Avco Motor Co. says it to protect even-
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AIR TRANSPORT



PINECKI HEL, capable of airlifting 12 litter patients and an attendant, in copter MATS wants for domestic airport-to-hospital shuttle.

MATS Tests Copter-Ambulance Shuttle

- Regular service on airport-to-hospital run due next year; plans call for fleet of 25.
- Sikorsky H-19 is used in one-week trial at Andrews AFB; but service hopes to get Pinecki H-21s.

By Lee Kloss

Transport helicopters will start replacing auto-ambulance service from Military Air Transport Service aircraft to major hospitals in the U. S. next year. MATS plans to get its first copter ambulance in six months and would like to buy 25 eventually. MATS air surgeon Brig. Gen. Wilfred Hall says he's confident of getting a few next year, but the request for 25 depends on the tight military copter priority situation in Korea and elsewhere.

The day of large-scale commercial transport airplane and copter movement of injured patients to specialized hospitals may have been brought a big step nearer by a joint test by the MATS development.

MATS has just completed a week's demonstration of copter movement of air-evacuated litter patients down from their C-34s as they land at Andrews AFB, near Washington, to the three major military hospitals in the metropolitan area—Bellevue, Bethesda and Walter Reed.

► West H-21s—MATS used a Sikorsky

H-19 borrowed from Air Rescue Service. MATS looks forward to availability of the bigger Pinecki H-21s later. Gen. Hall says the next step is to develop specifications for copter modification to meet special ambulance requirements. This was not purpose of the recent one-week operation at Andrews Field with the borrowed copter.

Gen. Hall says MATS wants 25 ambulance copters for use at once bases serving about 25 military hospitals to which auto ambulances serve a slow, traffic congested and costly route. Tentative plans call for spending about 25 copters as follows: Washington (Andrews AFB) 1, San Francisco (Grant) 1, Denver (Lowry) 2, New York (Mitchell) 2, Norfolk (Langley) 2, San Antonio (Brooks) 1, Rome, N. Y. (Griffis) 2, Philadelphia (Walter Reed) 2, and Tacoma (Oso Chief) 2; the remaining five would be the means to back up a continuous operating strength of the 24 located as above.

The six evacuation fleet of MATS operating within the U. S. consists of 20 C-34s on the trunk routes and 28

C-67s on local feeder routes. The 25 copters would add emergency shuttle routes they complement the evacuation from battlefield to U. S. base hospital.

A battle casualty starts out by copter to an airfield hospital behind the lines. From there, he is lifted by "Toboggan" C-46 or C-47 freighter. From Tokyo, he is lifted over the Pacific by passenger C-97 or other long-range planes. At Travis AFB in the West Coast he is assigned to a U. S. hospital and the domestic MATS system takes over.

► West Coast to Hospital—Wentworth witnessed a typical MATS dispatch of air-evacuated Korean casualties from Travis AFB to Washington hospital beds. The plane was a C-74 bound into Andrews Field with casualties from Korea. Aboard were 12 litter cases and 15 "ambulance" patients.

From bed climbed the patients in to treatment pooled their arms down, braced, then house of record or preference. Following their action, Travis signed the case to hospital most visible to their nearest, most service nearest and down-landing down as near home as possible.

The copter helio dispatch from Travis preceding arrival of the patients in the hospital could the patients in, at their destinations as follows: first figure litter cases, second ambulances: Bethesda, Va., 2 and 2, Bethesda, Md., 2 and 6, Walter Reed D. C. 5 and 5, Potomac, Va., 1 and 6, Norfolk, Va.,



PATIENTS TRANSFER from MATS G-4 (left) at airport to H-35 copter, then...



PATIENTS LAND at civilian hospital, avoiding surface traffic congestion

0 and 1, Perry Pt, Md. 0 and 1; Philadelphia, 0 and 2, Memphis, Mem, 1 and 2.

From this flight, nine litter patients and 11 ambulatory cases were scheduled for the three hospitals in the Washington area.

The horizontal copter carries only four litters, although an H-35 could take six litters. The one had to make three roundtrips to the hospitals to deliver the nine litter patients, but two H-35s could have delivered all litters plus the more serious of the ambulatory cases.

A fact might be necessary, not only to take care of the one flight properly, but also because two or more transporters may arrive at about the same time.

A C-54 with an litter cases and 17 ambulatory arrived at Andrews from Western AFB (originally Europe) an hour after the Veev flight.

The patients bound for most of the hospitals from Naval Air Station to Vietnam were scheduled for transfer to the MATS "trailer" G-47 service. One southbound G-47 picked up the group headed for Perry Pt, Philadelphia and Memphis. A southbound G-47 took those assigned to Camp Pele and Norfolk, Va.

The patients remain in the C-54

until transfer to copter or G-47. Then, when that shortland copter service becomes available, seriously wounded patients will be moved under controlled conditions half way. Around the world travel to specialized hospitals for treatment.

Why Helicopter—MATS and the medical services have made an extensive study of air evacuation benefits to patient movement. Gen. Hall says the cost of the special copter service at any point would be justified, but MATS has not yet proposed detailed budget particulars.

Here are the new advantages listed by MATS. Priority, patients meet comfort (from major relief airfield) by ground ambulance, often for considerable distances through congested traffic and over secondary roads to hospitals of first destination. Helicopters eliminate these hazards, speed patients to surgical and medical care in greater safety.

For the Washington, D. C., area, the most serious transport problem is any copter—copter time from Andrews to hospitals averages 15 to 20 min compared with road time of 1 1/2 to 2 1/2 hr largely through city traffic.

Gen. Hall points out that Andrews AFB receives about 400 air-accor pa-

tients a month. Of these, 10% or 200 are in the "seriously ill" category by MATS standards. That means an average of seven seriously ill patients landing per day, which might sound like a small number to require three helicopters standing by. But this life-saving operation is different than a scheduled commercial service.

First, the patients move to three different specialized hospitals in the area.

Second, two G-47 flights may arrive at Andrews at the same time.

Third, monthly averages do not reveal the statistical deviation that can lead to perhaps 50 seriously ill patients arriving together in an area.

And finally, there are certain by-product advantages. MATS also serves patients from one hospital to another. Andrews has 200 outgoing cases per month, of which about 50 are in the seriously ill category.

MATS is convinced it will acquire all 25 copters eventually, a few next year, others later.

Carriers Make Poor Showing at Hearing

The first three airlines to testify at Civil Aeronautics Board hearings in a so-called investigation in Miami produced odd results.

The first witness, Aero Finance Corp., championed itself from the case by refusing to reveal its company. This made a bad blip on the so-called case papers.

The first scheduled airline, Eastern, produced only one policy witness, who, during cross-examination by CAB lawyer General Ronald Cohen that he "did not know" the answers to most questions put him about Eastern's coach policy. This did not help the scheduled airline's case either. The most progressive and innovative coach policies previously by policy witnesses at scheduled coach hearings—TWA and American, for instance—was an almost endorsement of coach expansion.

The second witness, All-American Airways, issued authority only for charter-type, plane-load passenger and cargo operations, whereas most of the regulatory seek permission to continue and expand route-type passenger services.

Key men in the CAB case is to find a regulatory formula that would allow airlines a survival between competitive, yet without running competition to scheduled airlines.

Aero's Richard—CAB chairman Ralph Wynn and Richard Walsh discussed Aero from the case. Aero would not reveal its present stockholders and Aero witness E. J. Acemian failed at cross-examination.

Eastern's Referees—Eastern's one policy witness, Robert S. Lipp, as-



he's working for you

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AVIATION WEEK, December 8, 1952

79

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Hot News About Russian Aviation

To: JIM VAN DENBURG, CHIEF EDITOR, McGUIRE-HALL WORLD NEWS

NAT. McGUIRE-HALL, McGUIRE-HALL WORLD NEWS, LONDON

DAVID ANDERSON, EDITORIAL EDITOR, AVIATION WEEK

Another "hot" Russian aviation story has appeared in a U.S. magazine, purported to describe two new rocket fighters, with details. We don't know it. Some of our readers are impressed with this material, and the news paper publicity it won. They are disappointed in Aviation Week.

Should our conservative policy about having or printing material that is not about Russia be changed? On our editorial page July 30, 1993, we told our readers why we were not running copies of these "big" Russian air stories. Since early 1993 we had changed from no such material being offered to us for sale. We pointed out that in our opinion, extensive review was necessary if we were not to be caught playing into the hands of propagandists or certain hawks, future writers.

Aviation Week doesn't work to underwrite the Review. Neither do we care to underwrite them, even when we could get good newspaper headlines by being a chaser of doing so. What are they trying to get at in the trade? Have we been too conservative about publishing reports about Russia that come to us? Let me have a memo on the subject. We can change our policy, and print more of the stuff if you feel it is informative, and if you can trace the sources to your own subscribers and our. Waco

To: Waco
Berlin is full of characters who will tell you "inside information" on Russian aviation. Most of them claim to have just fled from the East Zone or Poland. It remains a fact, however, that not even German papers seem to care for this sort of "information."

If a high-ranking aviation expert made his way to the Western Zone, you can be sure he is from Berlin, or Bonn, or the British or French, will handle him to a place where he won't be able to tell his information.

The Review is quite careful not to expose their new stuff to the Berlin Zone. I would say that character even in Berlin, as thousands to me, against currency into a legitimate document store on new Russian air developments. Nobody can manufacture a "leak" of new developments, but I feel we would be saving our money and time to go into that market, and some of the best of material might become better. I think Gerry Schepers in our Frankfurt Bureau would write the information above. Van Denburg

To: Waco
I have taken various sources and come to the following conclusion. If it is your policy to do so, you can get interesting information, based on the uncorrupted information about Russian aviation developments. In no case at all can stories on Russian air development be deployed to "news" without being yourself open to advice from those who know.

The major source of Russian material here is a much case of three individuals, one of whom has just returned from the U.S. Their sources are, for the most part, to Western Germany. Like the child's game of whodunnit

a story around the room, the final version must maintain bear little relation to the original.

Here are a few examples:

1. A much wanted Russian supersonic fighter which was reported to be going into service about 1990 to be the ME-265 with wing and tail.

2. A report titled as "Russia's B-14 destroyer" found out to be nothing more than an MR-263 rocket plane of 1995 vintage.

3. In the engine field, while the "hot press" has been giving Soviet engines which have been built up German press what did the MIG-15 type engine with? The much-depended Nene. For some time now, there have been lots of "hot" Russian stories about real jet.

Some of the stuff is laughably ludicrous. Take the case of a satellite country which was said to have developed a replacement of very advanced design. One American magazine reported that as good, right down to the alleged designer's name. Unfortunately, the name translated into "proposed cockpit" and the source of the article was traced back to an Eastern European magazine's April Fool's issue.

On the other hand, I should think some Russian reporting could be handled in Aviation Week. In no case, however, would I think it wise to present the material as "news." Label it speculation with a capital S. McGUIRE-HALL

To: Waco
Very single he is involved in this chronology of a purported Russian stretch-wrap bomber, but please eliminate the names of the magazines and the men involved.

1. A.U.S. people magazine publishes an article under the pen name of a man I know. It describes a new Roll bomber. Article is illustrated in an inset I know, who worked with his magazine. There was no such bomber. The article was told that no person could be the one.

2. Foreign magazine publishes three versions of a purported Russian stretch-wrap bomber, between a stretch-wrap for the US-60. Three drawings appear in it: the Russian, the French, the German, and the Italian. There are last two others.

3. Foreign magazine publishes the drawings, equal to the case of an artist known to me through a German connection. I write the German and ask him to check. His checks, and tells me the drawing originated in a Russian magazine.

4. Gen. Vasilievich, USAF, speaks publicly about a Soviet stretch-wrap bomber (supposedly) and the Indian goes up again.

5. The most U.S. people magazine referred to in Paragraph 1 asks the same artist to make a drawing comparing the latest three versions of the Russian stretch-wrap bomber with the other early concepts. In the same issue he is to make the same comparison for the US-60.

6. Artist calls me to ask if there is one new material available on the Russian stretch-wrap bomber, and what can I find out? I tell him I have a contact in Germany who might be able to tell me, and so I write to Germany.

7. German local contacts press agency and says that drawings of three new Russian stretch-wrap type were taken from an artist (secretly) under such appearing in the U.S. magazine with the article mentioned in Paragraph No. 1.

Thus the whole thing falls apart. Anderson

To: Van Denburg, McGUIRE-HALL, ANDERSON

Strict policy on so-called Russian news stories unchanged. Our readers' confidence is more important than true publicity in newspapers over "leakage." We can't trace Russian material we do print will be filtered, and labeled speculation when that's what it is. Waco



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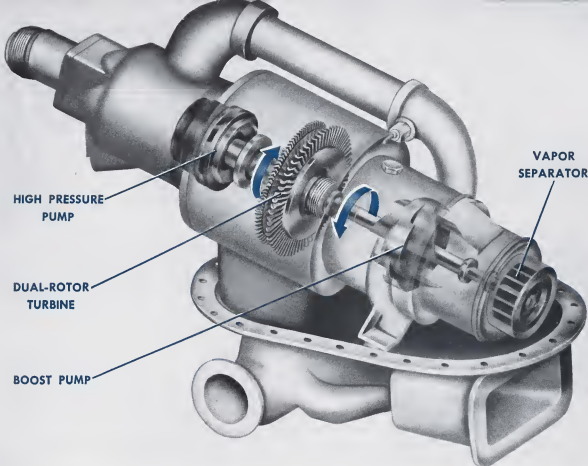
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